

Response to Comments Montana NTL 2007-1

General Comments

One comment questioned whether the NTL required that Electronic Flow Computers (EFCs) be installed on all wells, and that chart recorders were no longer acceptable. That is not the intent of the NTL. The NTL provides standards for the use of EFCs if an operator chooses to use EFCs. If an operator chooses to use a chart recorder, the standards provided in Onshore Oil and Gas Order No. 5 (OO#5) are still applicable.

One comment questioned the need for some of the requirements in the draft NTL, arguing that industry has developed ways to perform audits without some of these provisions. We do not argue that there are many ways to audit gas production. However, based on numerous internal reviews by the Office of Inspector General and based on the wording and intent of the Federal Oil and Gas Royalty Management Act (FOGRMA), BLM must perform independent site inspections as an integral part of our production accounting process. In addition, given the numerous responsibilities and limited number of oil and gas inspectors, our audit functions must rely on fast, simple, and effective methods of identifying cases that require in-depth investigation and audit. We believe the provisions required by this NTL provide our inspectors with the information needed to fulfill our responsibilities under FOGRMA and to detect and resolve measurement and reporting problems. No changes were made as a result of this comment.

One comment expressed concern over giving BLM full unaccompanied access to meters on federal leases for reasons of safety. BLM is also very concerned about the safety of our inspection personnel and will work with operators to ensure inspections can be made in a safe manner. However, Section 108(b) of FOGRMA mandates that BLM be given unrestricted access to leases:

“Authorized and properly identified representatives of the Secretary may without advance notice, enter upon, travel across and inspect lease sites on Federal or Indian lands and may obtain from the operator immediate access to secured facilities on such lease sites, for the purpose of making any inspection or investigation for determining whether there is compliance with the requirements of the mineral leasing laws and this Act”.

Federal regulations implementing FOGRMA further state:

"The operator shall permit properly identified authorized representatives to enter upon, travel across and inspect lease sites and records normally kept on the lease pertinent thereto without advance notice." (43 CFR § 3162.1(b))

"Any person shall be liable for a civil penalty of up to \$10,000 per violation for each day such violation continues...if he/she: (1) Fails or refuses to permit lawful entry or inspection authorized by 3162.1(b) of the title:" (43 CFR § 3163.2(e)(1))

These are statutory requirements that are beyond the scope of this NTL to change. BLM does not have the legal authority to waive or modify these requirements, and we believe that these provisions are necessary to ensure production from federal and Indian leases is properly measured and accounted for. No revisions to the NTL were made as a result of this comment.

One comment requested that BLM consider the economic impact of this proposed NTL and assess the effects of this NTL on the nation's energy supply, distribution, use, and cost and benefit to the industry in accordance with Executive Orders (E.O.) 12866 and 13211. This NTL is not a significant regulatory action as defined in E.O. 12866. It will not have an annual economic effect of \$100 million or adversely affect an economic sector, productivity, jobs, the environment, or other units of government. In accordance with E.O. 13211, the BLM has determined that the proposed rule will not have substantial direct effects on the energy supply, distribution or use, including a shortfall in supply or price increase. The NTL informs operators of the minimum standards and requirements for EFCs located within Montana, North Dakota, and South Dakota. Until issuance of the NTL, any installation of an EFC required a variance from the BLM. The provisions of the NTL do not represent a significant change from the existing variances that have been granted, and therefore will have little economic impact and will not have a substantial effect on the energy supply, distribution or use.

Comments on Specific Requirements of the NTL

Requirement 2

BLM received one comment objecting to the "picking and choosing" of parts of API 21.1 that will be enforced and went on to state that BLM should work with industry in the development of standards and then adopt them in whole. While BLM recognizes this comment and is actively working to address the concerns raised by the commenter, no changes to the NTL were made as a result.

This concern was first aired in 2003, when Wyoming NTL 2004-1 was circulated for comment. Since that time, BLM has worked diligently to participate with API and industry in the revision of API 21.1, as well as the revision of other standards, and the development of new standards for secondary and tertiary devices. It is BLM's intent to incorporate the new standards, to the extent possible, when OO#5 is eventually revised. However, industry standards are often written with differing purposes and goals than government objectives. Therefore, some industry standards, or parts of those standards, may be incompatible with statutory purpose and intent.

Additionally, the revision of OO#5 is tenuous, and it may be years before a new Order is in place. BLM will not embark on OO#5 revisions until the necessary API standards (14.3, 21.1, 22.4, and 22.5) have been finalized. Once these standards have been published, it is our intent to begin the revision process. The revision process could then take several years.

Given the uncertainty of when or if a revised OO#5 will be developed, BLM felt the need to develop interim guidance for EFCs. Because industry strongly objected to different NTL requirements being developed on a state-by-state basis, BLM developed a “model NTL” in an attempt to provide national consistency. The model NTL that is being proposed in Montana is a result of numerous meetings with API and industry. As the commenter states, many of industry’s concerns were addressed in the model NTL.

To date, Montana has not recognized or enforced any of the provisions of API 21.1. We feel that even without the revisions currently being developed, API 21.1 in its current form sets forth useful and necessary standards for EFCs. Unfortunately, API 21.1 contains several statements that: 1) exceed existing requirements for chart recorders under OO#5; 2) conflict with existing laws, or; 3) do not adequately define violations for the purposes of enforcement. Therefore, nine specific additional requirements to API 21.1 have been included in this NTL. In addition, four of the provisions of API 21.1 will not be enforced by BLM. As a result, BLM will be able to enforce the remaining provisions. For the most part, the additional requirements are minor and should not represent a significant burden to the industry. We felt it was more beneficial to adopt the majority of API 21.1, with a few additional requirements, than to not adopt it all.

A request that previously approved EFCs be “grandfathered” was made by one commenter. One of the purposes of an NTL is to provide consistent requirements for all meters within the jurisdiction of the Montana State Office (MSO). If existing EFCs were grandfathered under the variance that was used for their approval, it would result in inconsistent requirements, not only between federal and non-federal meters, but also between field offices and areas within field offices. Industry has strongly expressed a desire for consistent measurement standards, which we feel can only be accomplished by making this NTL retroactive to all EFCs. The timeframes for compliance given by this NTL were greatly expanded as a result of industry comment. We feel that the timeframes are reasonable and do not impose a significant financial burden on industry. No changes were made as a result of this comment.

Requirements 4 & 5

One comment objected to the onsite information required in Paragraphs 4 and 5, stating that some manufacturers will have to modify their software and some EFCs will have to be replaced in order to comply. The comment did not specify what part of the requirement would result in necessary modification of software or replacement of the EFC. The MSO is not aware of any existing meters within its jurisdiction that do not already have displays. It is difficult to envision that the EFC or its software would have to be modified to display the basic data elements required by Paragraph 4. None of the

onsite information required in Paragraph 5 is required to be part of the display. Therefore, we do not feel that these requirements are particularly onerous or costly and do not represent a significant change from the existing condition. No changes were made as a result of this comment.

Another comment asked for clarification regarding the requirement for instantaneous flow rate and previous day's volume in the display. The commenter asked if it was the intent of this requirement to only allow on-site calculations.

This is not the intent of the requirement. We realize that off-site calculations are relatively common and are allowed by API 21.1. However, even if off-site calculations are performed to derive final volumes, the flow rate and previous day's volume are still required at the meter. The values displayed on location do not necessarily have to be final settlement values. In most situations, BLM inspectors would have no indication of whether calculations were being done on-site or off-site, and would have no way of verifying where the calculations were being done even if it was indicated. For this reason, we felt that we must apply consistent requirements to all EFCs.

BLM received a comment stating that the requirement for instantaneous flow rate and previous day's volume is exceeding OO#5 requirements for chart recorders and questioned the need for this information.

The purpose of displaying the previous day's volume is to allow our inspectors to check for reasonableness of reported production. Production characteristics, such as plunger lift, are taken into consideration in our determination of reasonableness. The information necessary to calculate a previous day's volume would normally be available from a chart recorder, unless an inspector happened to visit a meter that just had a new chart installed.

We agree that the requirement for instantaneous flow rate is exceeding the requirements for a chart recorder in OO#5. However, we feel that the extra requirement is justified given the inherent complexity, capability, and variability in design of EFCs when compared to chart recorders. We also feel the instantaneous flow rate is necessary because of the statutory requirements of FOGARMA for an inspection program for independent verification of oil and gas measurement, reporting, and production accountability. No changes to the NTL were made as a result of this comment.

One comment objected to the requirement to have the specific gravity on-site, stating that it will prevent companies from using the most recent gas analysis that may be downloaded to the EFC. The Draft NTL states, "Operators must make every effort to keep this information accurate and up to date". As long as the operator makes a reasonable effort to update the data card after a new analysis has been uploaded to the EFC, they will be in compliance with this requirement. If we perform an inspection on the meter and discover that the specific gravity is out of date, the operator will be required to update the data card. The intent of this requirement is not to eliminate the most recent gas gravities being used in gas volume calculations. Rather, it is to ensure that reasonably up-to-date information is available on-site so that our inspectors can

perform spot check meter verifications. No changes were made as a result of this comment.

BLM received several suggested alternatives to the requirements of paragraphs 4 and 5. These include the following:

- *Display the instantaneous integral value instead of flow rate.* The purpose of displaying the flow rate is to enable a comparison between the displayed flow rate and an independent calculation of flow rate. Significant differences between the two can indicate a calculation error within the EFC or an errant flow parameter that was entered into the EFC. Because displaying the instantaneous integral value would not provide this type of independent spot check, this alternative cannot be adopted. No changes to the NTL were made as a result of this comment.
- *Display either the instantaneous flow rate or yesterday's volume, but not both.* There are different purposes for displaying each value. The instantaneous flow rate is required to allow an independent spot check of the functioning and programming of the EFC. Yesterday's volume is required to allow us to determine the reasonableness of reported production. Therefore, both values are required and no changes to the NTL were made.
- *Transmit the previous day's volume that is calculated off-site to the on-site display.* This would be acceptable. No changes were made to the NTL as a result of this suggestion because the NTL does not prohibit this.
- *Approximate the instantaneous flow rate by using the previous period's Integral Multiplier Value.* In most cases this would be acceptable. BLM has established internal error thresholds when comparing displayed and independently-calculated flow rates. If the threshold is exceeded, the operator will be asked to provide more information in order for BLM to identify the source of error and make corrections if necessary. If the use of the previous period's Integral Multiplier Value causes errors in excess of the threshold, it could mean an increased workload for operators. In most cases, the use of the previous period's Integral Multiplier Value should not cause flow rate errors significant enough to exceed our thresholds. Because the suggested alternative is not prohibited by the NTL, no changes were made.

Requirement 6

One comment expressed concern that the 6-year data retention requirement is onerous and expensive, and that the Federal Energy Regulatory Commission only requires a 3-year data retention period. Federal oil and gas lessees and operators have a statutory requirement to retain data for 6 years because of Section 103(b) of FOGRMA, which states:

"Records required by the Secretary with respect to oil and gas leases from Federal and Indian lands...shall be maintained for 6 years after the records are generated..."

Because this requirement is statutory, BLM does not have the authority to waive or modify it. To change this requirement would require a legislative amendment to FOGDMA, which is beyond the scope and authority of this NTL. Therefore, no changes were made as a result of this comment.

Requirements 9 & 11

One comment suggested that calibration tolerances be defined by either the device being calibrated or the calibration equipment, whichever is less accurate. Current wording of the NTL establishes calibration tolerances based only on the accuracy of the device being calibrated.

The NTL adopts API 21.1, which requires calibration equipment to be at least two times the accuracy of the device being calibrated (21.1.8.6). Therefore, in order to be in compliance with Paragraph 2 of the NTL, the transmitter/transducer will always be the less accurate device that will establish the calibration tolerance. No changes were made as a result of this comment.

Requirement 13

One comment argued that even if a temperature transmitter reads more than 2° in error, it can be adjusted by adding a “bias” within the calibration program. We agree that this is possible and that the method described in the comment would meet the intent of this requirement. As long as the operator can verify that the flowing temperature used by the EFC in flow rate and volume calculations is within 2° of a test device, this requirement is satisfied. Whether the necessary tolerance is achieved by a physical calibration of the transmitter or through a bias adjustment in the software is irrelevant. No changes were made to this requirement.

Requirement 15(a)

One comment stated that the upper 2/3 requirement for the operation of differential and static pressure was for charts only and does not apply to EFCs. The comment went on to describe the intent of the upper 2/3 requirement for charts, which was to provide better resolution for the integration process.

We agree that one of the reasons for the upper 2/3 requirement in OO#5 was to provide better resolution for integration. However, another effect of the upper 2/3 requirement, whether intended or not, was to set uncertainty limits for the operation of the chart recorder. For all pressure devices, the uncertainty of the device becomes greater as the percent of span decreases. For example, the typical reference accuracy of a differential pressure bellows in a chart recorder is $\pm 0.5\%$ of full scale. If the bellows has a 100” spring, then the accuracy of the reading is ± 0.5 ”, regardless of where the differential pen is reading. If the pen is reading 5”, the accuracy is still ± 0.5 ”, but this now represents $\pm 10\%$ of the reading. The same principal holds true for pressure transmitters and transducers in an EFC.

Earlier versions of the model NTL developed by the Washington Office did not include part (a) of Paragraph 15. It was felt that an overall measurement uncertainty standard (part (b)) would be more fair and workable because of the wide range of EFC accuracies and capabilities that are available compared to chart recorders. The $\pm 3\%$ established in part (b) was based on a calculated overall measurement uncertainty using an orifice plate and chart recorder that was operating just at the upper 2/3 limit for both differential and static pressure.

During the development of the model NTL, BLM received comments from industry expressing a concern that chart recorder accuracy specifications are incomplete and the real uncertainty of chart recorders is actually much worse than the $\pm 3\%$ that BLM was assuming. Therefore, their contention was that the $\pm 3\%$ uncertainty requirement for EFCs was more restrictive than the requirements for chart recorders. To address this concern, part (a) was added to ensure that in no circumstance, would EFCs be held to a higher uncertainty standard than chart recorders.

From a practical standpoint, we believe that paragraph (b) will be the less restrictive requirement for the vast majority of EFC installations. No changes were made as a result of this comment.

Another comment questioned the practicality of enforcing part (a) in spiking flow, where the reading could be fluctuating from zero to 100% of span. The commenter stated that EFC trend files may have to be run to determine where the EFC operates. This is really no different than enforcing the parallel provisions in OO#5 for chart recorders. As with OO#5, the NTL only applies to the “majority of the flowing period”. Sporadic operation of the EFC below the minimum required percent of span would not be a violation. API 21.1.6.2.1 requires that average differential and static pressure be collected in the Daily Quantity Transaction Record. These values may be used to determine compliance with this paragraph. No changes were made to the NTL as a result of this comment.

Requirement 15(b)

One comment stated that an uncertainty requirement is unprecedented and extremely restrictive. Within the jurisdiction of the Montana State Office, virtually all EFC variances issued to date include a requirement to install, operate, and maintain the EFC to achieve an overall uncertainty of $\pm 3\%$. Therefore, this NTL does not represent a significant change from the existing variances that have been granted.

We do not feel that the uncertainty requirement is overly restrictive. API 21.1.8.1 requires that:

“the electronic flow measurement system (flow computer and transducers) shall be capable of a performance uncertainty...of $\pm 1\%$ of flow over the expected range of operating temperatures and pressures for the installation.”

To demonstrate the restrictiveness of the NTL requirement versus the API requirement, we ran two comparisons; one using a self-contained EFC with differential and static pressure transducers rated at $\pm 0.20\%$ of calibrated span, and one using differential and static pressure transducers rated at $\pm 0.05\%$ of calibrated span. The results of the comparison are as follows:

DP/SP Transducer Reference Accuracy (% of span)	Minimum allowable DP or SP reading (% of span)	
	Montana NTL (3% overall measurement uncertainty)	API 21.1.8.6 (1% for flow computer & transducers)
0.20	11	46
0.05	3	15

From the above table, it is clear that this NTL is far less restrictive than existing requirements under API 21.1. For example, the EFC with transducers having a reference accuracy of $\pm 0.20\%$ of span can operate down to 11% of span and still meet the NTL, Paragraph 15(b), requirement for $\pm 3\%$ overall measurement uncertainty. The same EFC could only operate down to 46% of span according to the API 21.1 requirement.

In summary, we do not believe that Paragraph 15(b) is unprecedented within the MSO jurisdiction, nor do we feel it is overly restrictive. We feel that using overall measurement uncertainty as a performance-based requirement results in a consistent, objective, and fair method by which measurement systems can be regulated. Therefore, no changes were made as a result of this comment.

One comment argued that the term uncertainty can be confused with inaccuracy, and that meter stations not meeting the uncertainty specification in Paragraph 15(b) may be misconstrued to be reading inaccurately. We understand the point being made by the commenter, and agree that confusion does exist with the terminology. Uncertainty, as used in the NTL, is the statistical range of inaccuracy that may be occurring in a meter. It is also true that a meter operating with a high degree of uncertainty may not have any inaccuracy. However, the high degree of uncertainty increases the *probability* of inaccuracy. We do not believe wording changes in the NTL would clarify the difference between uncertainty and inaccuracy (and no wording changes were suggested by the commenter). Clarifying the meaning of uncertainty and inaccuracy will be an ongoing educational effort among both BLM and industry. No changes were made as a result of this comment.

One comment stated that the method of uncertainty determination does not take into account that some sources of uncertainty may work in one direction, whereas other sources of uncertainty may work in the opposite direction, thereby offsetting each other. We do not agree with this statement. The root-sum-square statistical method described in API 14.3.1 (1991) and used by BLM to determine uncertainty does, in fact, assume that some sources of uncertainty will be offsetting.

For example, assume that a measurement system consists of only two components, A and B. The uncertainty of component A is assumed to be $\pm 5\%$, and the uncertainty of component B is assumed to be $\pm 2\%$. If the offsetting effects were not taken into consideration, the total uncertainty of the measurement system would be $\pm 7\%$ (the algebraic sum of the two components). However, the root-sum-square method, employed by BLM, gives the following result:

$$U_{system} = \sqrt{U_A^2 + U_B^2} = \sqrt{5^2 + 2^2} = \pm 5.39\%$$

where:

U_{system} = uncertainty of the measurement system (%)

U_A = uncertainty of component A (%)

U_B = uncertainty of component B (%)

Note: all uncertainties are 2-sigma, or at a 95% confidence level

This method of calculation assumes that some degree of offsetting of uncertainties is probable. No changes were made as a result of this comment.